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Western Tracking and Biomonitoring Collaborative – Results and Recommendations

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Participants -

- Alaska
- Arizona
- California
- Colorado
- Hawaii
- Idaho
- Montana
- Facilitation by Lovelace Clinic Foundation
- Nevada
- New Mexico
- Oregon
- Utah
- Washington
- Wyoming
- UC Berkeley

Goal

- Use collaboration between Western Tracking and Rocky Mountain Biomonitoring Consortium States to build capacity for tracking and biomontoring

Objectives

- Assess the current capacity of the WTBC to perform tracking and biomonitoring functions;
- Assess and collate common exposure and environmental priorities among the states;
- Explore potential of leveraging existing lab capacity to perform regional biomonitoring.

Table 1: State health department affiliations

State	EPHTN	RMBC	Neither	LRN Chemical Laboratory Level
Alaska			X	2
Arizona		X		2
California	X			1
Colorado		X		2
Hawaii			X	2
Idaho			X	2
Montana	X	X		2
Nevada	X			2
New Mexico	X	X		1
Oregon	X			3
Utah	X	X		2
Washington	X			2
Wyoming		X		3

Step 1: Assessment of Lab Capacities

- Analytes labs could test for;
- Analytical instruments and methods used
- Detailed analytical and sampling information
  - (lab capacity, field and lab practicality, cost, limitations, logistical concerns)

WTBC Laboratory Capabilites Y-S-N

Compound	AK	AZ	CA	CO	ID	MT	NV	NM	OR	UT	WA	WY
**Heavy Metals Panel	Y	Y	y	Y	Y	Y	Y	Y	Level 3	Y	Y	Level 3
Arsenic Speciation	S	S	N	S	S	N*	S	S	Level 3	S	S	Level 3
**VOCs Panel	N	N	N	N	S	N	N	N	Level 3	N	S	Level 3
Mercury [Speciation]	Y	Y&S	Y	N	S	N*	S	N	Level 3	S	S	Level 3
Organophosphates	N	S	Y	N	S	N*	N	S	Level 3	N	Y	Level 3
Cotinine	S	S	N	N	N	N*	N	N	Level 3	S	N	Level 3
PAHs	N	N	N	N	N	N	N	N	Level 3	N	N	Level 3
**Radionuclides	N	N	N	Y	N	N	N	N	Level 3	S	Y	Level 3
Organochlorine Pesticides	S	N	Y	N	N	N	N	N	Level 3	N	S	Level 3
Nitrates/Nitrites	N	N	N	N	N	N	N	N	Level 3	N	N	Level 3
Disinfection Byproducts	N	N	N	N	N	N	N	N	Level 3	N	N	Level 3
Phthalate metabolites	N	N	N	N	N	N	N	S	Level 3	S	S	Level 3
Perchlorate	N	S	N	N	N	N	N	N	Level 3	N	N	Level 3
Creosote	N	N	N	N	N	N	N	N	Level 3	N	S	Level 3
Dioxin/Furan	S	N	Y	N	N	N	N	N	Level 3	N	S	Level 3
Cyanide	Y	Y	Y	Y	Y	S	Y	Y	Level 3	Y	Y	Level 3
Carbon Monoxide	Y	Y	N	N	N	N	N	Y	Level 3	Y	N	Level 3
CT agents (to be defined)	s	Y&S	Y	S	S	N	S	Y	Level 3	S	Y	Level 3
Pyrethroid Insecticides	N	S	N	N	N	N	N	N	Level 3	S	N	Level 3
Polychlorinated Biphenyls (PCBs)	S	N	Y	N	N	N	N	N	Level 3	N	N	Level 3
Polybrominated Diphenyl Ethers (PBDEs)	S	N	Y	N	N	N	N	N	Level 3	N	N	Level 3
Diesel	N	N	N	N	N	N	N	N	Level 3	N	N	Level 3
PFOA's	N	N	N	N	N	N	N	N	Level 3	N	N	Level 3

** - broad panels. Further definition of panels will occur later in the process

Y = Yes	Do the analysis currently
S = Soon	Will start the analysis within one year
N = No	Don't do the analysis
NA	No Answer
NOTE:	N * = Would like to do in the future
Level 3	Level 3 CT lab- does not perform clinical chemical analysis.

Identification of advantages of regional collaboration

- Can capitalize on existing diversity of lab resources and capabilities
- Distribute lab workload throughout region
  - Including analysis and support functions
- Sharing of analytical methods and expertise
  - Develop support network of regional chemists

Criteria for Prioritization of Compounds for Regional Biomonitoring

- Field Feasibility
  - Collection/shipping logistics; IRB
- Exposure assessment
  - Contribute new info to protect public health?
  - Env. data available to support human tissue data?
- Health Effects
  - Know or suspected health effects for each analyte?
  - Temporal/Spatial variability in health effects/exposures
  - EJ concerns?

Criteria for Prioritization of Compounds for Regional Biomonitoring (cont)

- Epi/Surveillance Considerations
  - Can data be collected in a systematic and sustainable manner?
  - Can exposures be linked to env. samples? Health effects?
  - Are there vulnerable populations? Interventions?
- Other factors
  - Potential policy proposal
  - Community concern?
  - Funding?

Compound	AK	AZ	CA	CO	HI	ID	MT	NV	NM	OR	UT	WA	WY	Average
*Heavy Metals Panel	4	1	8	3	**1**	1	1	2	1	4	1		1	2
Mercury [Speciation]	1	11	1	10	**3**	2	3	1	2	2	3	1	5	4
Arsenic Speciation	5	2	17	2	**2**	3	2	3	5	3	2	2	2	4
Organophosphates	18	7	3	5	**4**	6	7	12	3	5	10	5	6	7
Organochlorine Pesticides	3	12	7	6	**6**	7	8	11	12	19	9		7	8
Cotinine	7	14	16	19	**12**	17	6	21	4	1	4		12	10
Phthalate metabolites	17	6	4	8	**9**	19	21	5	8	12	13		8	10
Disinfection Byproducts	16	10	9	9	**11**	16	13	6	6	13	14		10	10
*VOCs Panel	9	13	18	7	**5**	10	9	22	9	17	6		3	10
PAHs	10	9	10	11	**8**	12	12	18	10	8	12		11	10
*Radionuclides	13	21	19	1	**22**	11	4	4	13	16	15		9	11
Polybrominated Diphenyl Ethers (PBDEs)	6	17	2	15	**14**	9	10	8	16	10	16	4	19	11
Pyrethroid Insecticides	19	4	5	14	**10**	14	11	17	7	6	19		17	11
Nitrates/Nitrites	12	20	12	20	**15**	13	5	19	14	7	8		16	12
Polychlorinated Biphenyls (PCBs)	2	16	14	18	**7**	8	14	10	17	11	20	3	18	13
Diesel	11	5	13	13	**16**	22	15	9	11	18	21		14	13
Perchlorate	22	3	15	13	**13**	18	17	13	15	14	7		20	13
Dioxin/Furan	14	15	11	21	**20**	15	18	7	18	15	5		22	13
Carbon Monoxide	8	8	21	22	**17**	21	16	16	21	9	18		21	15
Cyanide	20	22	20	16	**19**	4	20	14	20	22	11		15	15
CT agents (to be defined)	21	19	22	17	**21**	5	22	15	22	20	17		4	15
Creosote	15	18	23	12	**18**	20	19	20	19	21	22		13	17
PFOA's			6											1

* - broad panels. Further definition of panels will occur later in the process

Emerging Concerns

- Compounds of interest where we currently do not have adequate lab capability (e.g. PBDEs, PAHs, disinfection by-products)
- Compounds of interest where biomarkers do not yet exist (e.g. diesel)
- Compounds of interest lacking strong epi evidence (phthalates, PFOA, bishphenol-A)

Emerging Concerns (cont.)

- Compounds that may not have strong evidence of human exposure (e.g. substitutes for OP pesticides)
- Currently unknown toxic chemicals which have not yet been introduced into commerce

Selected Recommendations

- Funding should continue to support a pilot biomonitoring program in the Western States
  - Collaboration/dialogue between epi, lab science and IT
  - Laboratorians should be included as members of the EPHT IT development process
  - WTBC IT core group should be formed including laboratorians, epidemiologists, and IT professionals

Selected Recommendations

- Results from biomonitoring activities should be returned to participants, supporting community right-to-know
- CDC should support regional cooperation with expanded use of existing equipment from CT funds.
- CDC Biomonitoring Program should provide regional-specific estimates of national data